

Title (en)

A TOOL FOR HOT FORMING STRUCTURAL COMPONENTS

Title (de)

WERKZEUG ZUM WARMUMFORMEN VON BAUTEILE

Title (fr)

OUTIL POUR FORMER DES COMPOSANTS STRUCTURELS À CHAUD

Publication

EP 3233325 A1 20171025 (EN)

Application

EP 15817241 A 20151217

Priority

- EP 14382534 A 20141218
- EP 2015080368 W 20151217

Abstract (en)

[origin: EP3034192A1] A tool for manufacturing hot formed structural components having locally different microstructures and mechanical properties, the tool comprising upper and lower mating dies, each die being formed by two or more die blocks comprising one or more working surfaces that in use face the structural component to be formed and one or more supporting blocks, the upper and lower dies comprising die blocks are adapted to operate at different temperatures corresponding to zones of the structural component to be formed having locally different microstructures and mechanical properties, the die blocks including one or more warm die blocks adapted to operate at a higher temperature, and one or more cold die blocks adapted to operate at a lower temperature, and wherein at least one of the warm die blocks is an electrically conductive die block which is electrically connected to a current source configured to provide a DC current through the die block to control the temperature of the die block. Furthermore, a method for manufacturing hot formed structural components is also provided.

IPC 8 full level

B21D 37/16 (2006.01); **C21D 9/48** (2006.01)

CPC (source: CN EP KR RU US)

B21D 22/022 (2013.01 - US); **B21D 37/16** (2013.01 - CN EP KR RU US); **B21D 47/00** (2013.01 - US); **C21D 1/673** (2013.01 - EP US); **C21D 9/46** (2013.01 - RU); **C21D 9/48** (2013.01 - KR); **C21D 1/34** (2013.01 - EP US); **C21D 9/48** (2013.01 - EP US); **C21D 2221/00** (2013.01 - EP)

Citation (search report)

See references of WO 2016097224A1

Designated contracting state (EPC)

AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

Designated extension state (EPC)

BA ME

DOCDB simple family (publication)

EP 3034192 A1 20160622; CA 2969774 A1 20160623; CA 2969774 C 20230124; CN 107107155 A 20170829; CN 107107155 B 20200124; EP 3233325 A1 20171025; EP 3233325 B1 20181205; ES 2711123 T3 20190430; JP 2018501113 A 20180118; JP 6649384 B2 20200219; KR 102392328 B1 20220502; KR 20170095869 A 20170823; RU 2017125300 A 20190118; RU 2017125300 A3 20190717; RU 2714559 C2 20200218; US 10625327 B2 20200421; US 2017348753 A1 20171207; WO 2016097224 A1 20160623

DOCDB simple family (application)

EP 14382534 A 20141218; CA 2969774 A 20151217; CN 201580068517 A 20151217; EP 15817241 A 20151217; EP 2015080368 W 20151217; ES 15817241 T 20151217; JP 2017533028 A 20151217; KR 20177016433 A 20151217; RU 2017125300 A 20151217; US 201515536225 A 20151217